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**ENTREPRENEURIAL
CONTROL
IN FARMING**

ABSTRACT

The central thesis of the study is that important elements of entrepreneurial control and decisionmaking are being shifted from farm firms to off-farm businesses and government agencies. A major purpose of this report may be served if the reader becomes aware of what is happening to entrepreneurship and gains an appreciation of the impact of current trends on the future well-being of farm people. Analysis of the limited amount of research on this subject supports the thesis. Three empirical studies of entrepreneurial behavior done elsewhere suggest that about half of select elements of entrepreneurship have been shifted to off-farm firms. Projection of trends and predictions based on observation and reasoning indicate that such shifts in entrepreneurship may accelerate in the future. Examples of elements of entrepreneurship discussed are: Transfer of decisionmaking under production contracts, division of ownership and management under farm leases, mutual sharing of control in farmer cooperatives, assumption of all entrepreneurship by investor corporations, expanding guidance and supervision under farm credit, and shifts in control and decisionmaking under government programs.

Keywords: Bargaining, cooperatives, contract farming, corporations, decisionmaking, resources, institutions, integration, leases.

PREFACE

Recognition of a need for an analysis of shifts in entrepreneurship taking place in control and decision-making in agriculture emerged during discussions of the Interregional Land Economics Research Committee. Before undertaking the present study, the author reviewed elements of the study methodology with that Committee and with the Northeast, Southern, North Central, and Great Plains resource economics committees. The insights contributed during these discussions

and the specific help of many colleagues are gratefully acknowledged.

A preliminary paper by the author appeared in the American Journal of Agricultural Economics, 51:(3) 517-529, August 1969, under the title "Shifts in Entrepreneurial Functions in Agriculture." A more comprehensive and more completely documented report is being published by the Agricultural Law Center, College of Law, University of Iowa, under the title Entrepreneurship in Agriculture, as Monograph No. 12.

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SUMMARY

Substantial elements of entrepreneurial control in farming are being shifted from the farm to off-farm firms and government agencies. The overall trend is toward an acceleration of such shifts, brought about by the quickening of change in agricultural technology and in processing and marketing farm goods.

Vertical coordination via production contracts will probably account for some of the continued shifting of entrepreneurship to off-farm firms during the 1970's. Farm leasing may continue to increase, causing further shifts in entrepreneurship. Such leasing may include lease-like arrangements for the use of farm buildings and machinery, custom hiring for the performance of selected farm operations, and custom feeding and caring for farm animals.

National and regional farmer cooperatives may greatly expand their buying and selling activities, with considerable expansion of various forms of cooperative or collective bargaining likely. Some principles of cooperatives may be increasingly adapted to onfarm production, particularly in meeting market specifications. The shift of entrepreneurship to local cooperatives may continue to be minimal.

Family and investor corporations are both expected to grow in importance in agriculture. When a family corporation is formed out of a sole proprietorship, the shift in entrepreneurship is typically very slight. In contrast, the investor corporation usually involves a complete shift of entrepreneurship to the corporation.

Farmer credit encumbrances are calculated to expand significantly over the next decade. Current trends in adapting farm credit to the needs of farmers, particularly those with little experience or low equity, indicate some shift of entrepreneurship to creditors. The shifts usually involve some participation by the creditor in organizational decisionmaking, but less in operational decisions.

Although the participation may, on the surface, look like advisee and guidance, it may have a supervisory undertone.

Under societal reservations--including taxation, eminent domain, the police power, and the spending power--substantial quantities of entrepreneurship are shifted to government agencies. Such shifts may be accelerated by the growing emphasis on improving the environment, especially by checking pollution, and on developing recreation facilities.

Problems associated with the shifting of entrepreneurship are intensified by the slowness with which economic institutions and organizational forms adjust to technological and processing-marketing innovations. The contract between the farmer and the off-farm firm is usually prepared by the latter's lawyer and is typically weighted to protect the off-farm firm's interests. Current educational sources have not supplied the farmer with information needed to protect his interests. A crucial issue is whether the analytic tools of modern research will be used to guide the developing situation or whether economic forces will be permitted to run their courses.

Perhaps a new business form for agriculture would result from indepth analysis and programming for the future. To meet the emerging needs of agriculture, the new form might provide for private initiative similar to sole proprietorships, limited liability comparable to the corporate form, select cooperative principles adapted to onfarm production, financing based on variable annual earnings to replace fixed payments of amortization and interest, and improved vertical coordination contracts under a body of law designed specifically for them. The new business form might be favored with some tax advantages, particularly in its early development, and with special laws, comparable to those governing corporations and cooperatives, to provide legal sanction and protection.

ENTREPRENEURIAL CONTROL IN FARMING

by Marshall Harris¹

INTRODUCTION

Three studies on the various elements of entrepreneurship in farming indicate that a substantial amount of control has shifted from the farmer to off-farm firms. One study, relating to vertical coordination via production contracts, found that marked proportions of decision making responsibility were being transferred to off-farm coordinators (*I*)². A second study analyzed the role of landlords and tenants within the framework of the farm (*2*). Under this arrangement, the two parties were found to share the management responsibilities. A study relating to the production of vegetables under contract showed that the farmer shared much of the responsibility of management decisions with the processors (*3*).

Other studies provide generalized information on the division of entrepreneurship under production contracts and other business arrangements. Some statements make indirect reference to the farmer's loss of entrepreneurship. Others show more directly that farmers producing under contract transfer a considerable part of many entrepreneurial functions to off-farm firms and government agencies.

Entrepreneurial shifts are taking place in agriculture chiefly under the impact of the technological revolution, but also because of marketing and merchandising innovations and brand promotion. These changes affect the organizational structure of the farm firm and the entire agricultural industry. They will help determine the types of food and fiber produced and the levels of production. And they will affect the people and resources of rural America.

The Industrial Revolution brought about organizational and structural changes, as well as technological changes. One researcher put this in sharp perspective when he said, "The most important inventions are not mechanical inventions, or such developments as chemo-

therapeutics. The most important invention of our age is very probably the corporate form" (*4*, p. 10).

The hallmark of the agricultural revolution may not prove to be the mechanical devices, chemicals, or hybrid seeds and animals. Rather, it may be the invention of a business form under which future agriculture is organized and operated. The new business form may accommodate the needs of agriculture as successfully as the corporate structure has met the needs of industry.

The current technological and marketing revolutions in agriculture place a strain on its organization and structure. Strain arises because technical change is rapid, while organization-structural-institutional-cultural change is slow.

These changes also place strain on the structure of local or central markets that serve agriculture—land, labor, capital, and other factor and product markets. Farm operators are buying a much larger share of their inputs; are producing more highly specialized goods and to more rigid specifications as to variety, quality, quantity, and time of delivery; and are experiencing great change in the market place through buy-or-sell transactions that occur before production begins or products are ready for delivery.

These changes are not easily recognized or understood. A study of the modern corporation and private property suggests that such changes may remain unrecognized or misunderstood until there is no turning back, (*5*, p viii). What do these changes mean for the organization and structure of agriculture?

For one thing, changes are leading toward a loss of the traditional decisionmaking power among farmowners and an exercise of the power of decisionmaking among parties not holding conventional ownership. In short, the trend is toward "property without power" in the farmer and "power without property" in the off-farm firm.

Loss of ownership rights is taking many forms. In industry, loss is due almost exclusively to adoption of the corporate device. The corporate idea has never had the same lure in the agricultural economy as in the business world. In agriculture, loss of entrepreneurial functions now occur largely because of contracts with off-farm firms, rather than complete substitution of other business forms for the sole-proprietor family-farm structure.

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²Italic numbers in parentheses refer to items in Literature Cited, at the end of this report.

Purpose of the Analysis

The general purpose of the analysis is to call attention to what is happening to entrepreneurship in agriculture. Beneficiaries of such information would include agricultural policy makers, legislators, researchers, and ultimately, farmers who wish to remain entrepreneurs in the fullest sense. We hope to suggest an analytical framework within which the evolving organization and structure of agriculture may be more fully observed, studied, and understood. The specific purposes are:

1. To develop a framework for empirical analysis of entrepreneurship in modern agriculture, including probable developments in the near future;
2. To describe interrelations between the entrepreneurial situation in agriculture and the present condition of resource institutions and the technological revolution; and
3. To describe major problem areas and develop tentative hypotheses and propositions for empirical testing.

In agriculture, are gains in income, growth, and status that come from shifts in entrepreneurship equal to, greater than, or less than losses from such shifts? Before anyone can make such an evaluation with precision, devices are needed to measure shifts in entrepreneurship and to measure economic, social, and political gains due to such shifts. A first step here is to examine the meaning of entrepreneurship; the most crucial characteristics of the legal-business forms in agriculture; the attitudes and values about entrepreneurship that are critical in the analysis; and the bargaining position of farmers in the market place.

Meaning of Entrepreneurship

The term entrepreneurship is not used widely in agricultural economic literature, and it usually is treated in a general way. A major occurrence in the field of study of entrepreneurship was the establishment, over two decades ago, of the Research Center in Entrepreneurial History at Harvard University. The Center published a journal entitled *Explorations in Entrepreneurial History*. Publication of the journal was shifted after a decade to Earlham College, and later to the University of Wisconsin. It is now sponsored by Kent State University. (See (6) and (7).)

In that journal and in other literature, entrepreneurship has been given a wide variety of definitions, ranging

from very narrow to very broad. At one extreme, entrepreneurship is interpreted as concerning only the introduction of innovations. At the other extreme, it is defined as encompassing the entire production process (the position taken in this analysis).

For purposes of this study, we define an entrepreneur as the person who owns and runs the farm. His entrepreneurship encompasses the entire farm production process; he organizes, initiates, manages, directs, coordinates, controls, innovates, institutes major changes, buys, sells, and assumes the risks of the farm business, enjoying profits and suffering losses.

An entrepreneur can best perform his numerous functions in an economic-social-political environment that virtually guarantees his complete autonomy in decisionmaking. However, absolute autonomy or absolute independence is not feasible or desirable for entrepreneurs in an organized society. When men form a social compact, they pledge conformance to conditions inherent in the society and to responsibilities imposed by living in harmony within the society. Legally enforceable ways of doing things are institutionalized so people can make decisions with a high degree of certainty that they can be implemented and that contracts can be enforced. In our society, the entrepreneur seeks the maximum degree of independence commensurate with his and others' personal responsibility to society. Complete independence can exist only as an abstraction here. The status of economic transactions and the legal ways of organizing the production of goods and services, for example, affect the independence with which the farmer-entrepreneur can make decisions.

The concept that the farmer-entrepreneur (later defined as an independent farmer) is autonomous except in matters reserved for society can be used in several ways in an investigation of how much entrepreneurship has been shifted from the farmer-entrepreneur. One approach would be to assume a total absence of entrepreneurship in a would-be entrepreneur and to show, step by step, how complete entrepreneurship can be attained. A second way would be to assume a typical entrepreneurship and explain how parts of some elements can be shifted (lost or gained). A third approach would be to visualize the greatest possible degree of entrepreneurship in a farm operator and to demonstrate how various parts can be transferred to numerous off-farm firms.

The third approach was selected as the basis for a model because it is simple and can measure shifts in entrepreneurship most directly. We term the entrepreneur who holds the greatest possible degree of entrepreneurship the independent farmer.

Independent-Farmer Model

The abstract independent farmer of the model has these characteristics:

1. He holds full and complete ownership of the farm (real property) under fee-simple-absolute title--he does not rent or similarly have less than full control over any of the land he operates. There are no restrictive covenants, limiting conditions, or easements associated with his title. The real estate is free of mortgage debt and other liens or encumbrances.

2. He also owns all of the capital (personal property) with which he operates his real estate. There are no liens, mortgages, or conditional sales agreements associated with the personal property, and he does not rent any of it.

3. He and his family provide all of the labor to operate his farm--none of the farm operations are custom-hired.

4. He holds complete managerial control over his entire farming activities--he makes all organizational and operational decisions. He decides how much to produce, what inputs to use, what products to sell, and where, when, and at what price to buy inputs or to sell products. He is free throughout the entire production process to make all decisions in light of his interpretation of current and long-run conditions.

5. He is a full-time farmer and his farm is large enough to supply, in a normal year, all the income his family requires.

6. He bears all the risks and losses, and reaps all the rewards and gains of the entire farm business.

7. He is, of course, subject to societal control through taxation, eminent domain, police power, escheat, the spending power, and other means.

By sharing any attribute of the independent-farmer model, the farmer would shift some element of his entrepreneurship, at least in part, to an off-farm firm or individual or to a government agency.

Thus, the independent farmer holds the most complete entrepreneurship conceivable, regardless of the time, place, or type of situation under observation. He is a benchmark against which any entrepreneurial situation in farming may be studied and evaluated. He is not posed as a policy goal.

Because of modern technology, farming requires more entrepreneurial competency and other production inputs than were needed when the country was first being settled. The actual requirements may vary, depending on size and type of farm and other factors. For example, a large farm calls for more entrepreneurial acumen than a small farm. A crop and livestock farm

usually requires more entrepreneurial skill than either a crop or a livestock farm. But whatever elements of entrepreneurship are needed, the independent farmer holds all of them.

Open-Market Requirement

An open market in which to buy and sell is necessary for the independent-farmer model to be operationally feasible. The open-market model has the following characteristics:

1. It has many sellers of inputs. There is neither monopoly--where one producer controls the supply of a product demanded by a large number of buyers--nor oligopoly--where a few producers have this control.

2. It has many buyers of products. There is neither monopsony--where one buyer controls the demand for products from a large number of sellers--nor oligopsony--where a few buyers have this control.

3. Buyers and sellers are fully informed of market conditions, in particular the supply-demand situation, quality, price, and other associated conditions.

4. Buyers and sellers are free to buy and sell, and may be spoken of as willing buyers and willing sellers. If they have previously agreed to any condition surrounding the market transaction--such as buying or selling by a given time or at a specified place--they may not make transactions in an open market.

Any diminution in any of these characteristics of the open-market model is a departure from the freely competitive economy in which the independent farmer must operate. Any subtraction from the rights and rewards of the independent farmer or any addition to his responsibilities and risks represents a diminution or weakening of entrepreneurship.

Crucial Characteristics of Farming

The principal characteristic distinguishing farming from other large segments of the economy is the legal-business form under which production units are organized and operated. Farming is based largely on the sole proprietorship, while industry and commerce are based almost entirely on the corporate form. There are many typical differences between these two business forms which will be shown as indicating the importance of legal-business forms in our consideration of entrepreneurship. Small, closely held family corporations will be distinguished from investor corporations later in the analysis of shifts in entrepreneurship under corporations.

Other contrasting characteristics of agriculture that affect shifts in entrepreneurship include:

1. High annual amortization and fixed interest costs in financing agriculture, in contrast to variable dividend costs in financing industry and commerce.
2. Small, separate firms in agriculture in contrast to giant, related units in industry and commerce.
3. Greater dependence in agriculture on variable natural factors, such as land, water, and weather.
4. Greater dependence in agriculture on variable biological factors, such as the rhythm of production cycles of plants and animals.
5. Closer economic association in agriculture between the entrepreneur's home and business.
6. Almost exclusive dependence in agriculture on publicly sponsored research, in contrast to dependence of business and commerce on research by large corporations.
7. A similar dependence in agriculture on publicly sponsored research for innovations in business forms and economic-legal relationships.

With the possible exception of the closer association of home and farm, these characteristics leave the sole-proprietor farmer-entrepreneur in a weaker position than the representatives of corporate industry and commerce with whom he transacts business.

Attitudes and Values

Attitudes and values that are important variables in an analysis of changing entrepreneurship in agriculture come from a unique admixture of political, economic, social, and religious philosophies. Three general groups seem to be associated with the changing entrepreneurial scene.

The first group relates to equality, security, and equity. Equality was a substantial guideline in fashioning our land system of original 160-acre units and equal devolution. Security emerged in clear perspective following the depression of the 1930's. Equity became a concern in distributive matters after post-World War II affluence made it clear that no citizen should remain below a minimum level of living.

The second group of values and attitudes relate to freedom, liberty, and independence. They may be in conflict with the first group, where unrestrained economic power permits the development of excesses in size, reduction in competition, and inequity in distribution.

The third group involves an ideological conflict between agrarian fundamentalism and industrialism. A major question is whether agriculture will join the mainstream of commercialization, industrialization, and

urbanization, or instead will remain as it is so that cherished agrarian attitudes and values can be maintained.

Bargaining Power

The farmer-entrepreneur bargains from weakness rather than strength. In the factor market, except when buying through cooperatives, he usually pays the price the seller places on the input. If the input is supplied under a production contract, shifts in entrepreneurship are likely. Although pricing is important in selling products, specifications involving such factors as quality, weight, and time and place of delivery are also becoming important. The farmer's weak bargaining position extends to those considerations.

Bargaining may increase prices, but for most agricultural products, the probable bargaining range is relatively narrow. The possibility of another product being substituted is likely to prevent the price of any one commodity from becoming too high. Some control over supplies is usually necessary to raise the price. (See Ladd (8) and Breimyer (9).) Cooperative or collective bargaining may be more widely used, if other pricing and production-control programs fall into disuse.

Shifts in entrepreneurship may be analyzed best by giving special attention to production contracts, leasing, cooperatives, corporations, credit, and government programs. Partnerships would have been included here and greater emphasis would have been placed on ownership and risks had adequate recent information been available.

PRODUCTION CONTRACTS

Production contracts are arrangements between farm firms and off-farm businesses for buying, producing, and/or selling specified products. Many production contracts essentially shift control through the tendency to centralize organizational and operational management in the off-farm firm.

Shared decisionmaking may cover (1) what to produce—quality and physical characteristics; (2) how much to produce; (3) when to deliver; and (4) how to produce, including what inputs to use. (See Kohls (10, p. 1,802).)

There are indications that farmers may find it necessary to produce to exacting specifications in the future. In writing on vertical integration and management, Castle suggested that "The quantity of the contracted crop that is to be produced may cease to be a variable to be determined; rather, it will be a requirement that will have to be met" (11, p. 439).

Production contracts usually bring together in one transaction the previously market-coordinated processes of buying inputs and selling outputs. They also may tie together one or more successive stages of onfarm production with one or more successive stages of off-farm activity. As Farrell explained in a discussion of vertical coordination in food production, "Production, processing, and distribution are being meshed to provide for mass merchandising of highly uniform food products involving product differentiation through proprietary brands and large-scale advertising. Increasingly, the food industry is becoming akin in orientation and in some respects, in operation to the industrial sectors of the U.S. economy" (12, p. 1).

Production contracts represent one step in accomplishing for farming what the corporate structure did for industry. The separation of capital, management, and labor is being achieved in degrees to suit varying situations. In broiler production, the separation is almost complete. In the production of commercial eggs, lesser entrepreneurial functions are typically shifted to off-farm firms.

The separation of capital, management, and labor was brought into focus in a New Jersey Supreme Court decision over a decade ago. Perhaps the case was atypical to some production contracts, but it reasonably represented many poultry production contracts.

A farmer agreed to receive chicks, feed, and medication, and to follow instructions in raising the chicks and producing eggs for a contractor. The farmer furnished land, buildings, and labor. The degree of the farmer's control via his supervision of operations seemed comparable to that in other production contracts in the poultry industry. While performing the agreed upon work, the farmer was physically injured and sued for compensation.

To the casual observer, the farmer might appear to have possessed most of the characteristics of the independent-farmer model. He had, however, shifted his right of ownership of the chicks and the hens and their produce, the eggs, and so much of his organizational and operational control to the off-farm firm that the Court held that the farmer had become a laborer employed by the off-farm firm (*Mareus v. Eastern Agricultural Association*, 32 N.J. 460, 161 A. 2d 247 (1960), reversing per curiam, 58 N.J. Super. 584, 157 A. 2d 3 (App. Div. 1959)). The injured farmer was due compensation as a laborer, because he was in fact employed to perform services specified and controlled by the off-farm firm.

Shifts in entrepreneurial functions may not be the major characteristic associated with contract farming. A propensity toward monopolies, oligopolies, monopsonies, and oligopsonies has been observed. Scaver said,

in writing about integration in the poultry industry, "Achieving such organizational innovations invariably involves some degree of control, . . . And, let's not be naive enough to think that this control could not lead ultimately to large degrees of monopoly" (13, p. 2).

The strong bargaining oligopsony position of three poultry integrators in Arkansas led to a cease and desist order preventing the three from "Entering into, continuing, or cooperating in any agreement, arrangement, or understanding with any other person to boycott, blacklist, harass, intimidate, or coerce any poultry producer or farmer, for any reason whatsoever" (USDA P&S Docket, cited under (14)). A little over a year later, a second cease and desist order was issued in a similar situation in Mississippi (USDA P&S Docket, cited under (15)).

The U.S. Fifth and Eighth Circuit Courts of Appeals later set aside the rulings, holding that USDA does not have authority to issue such orders under the statute cited but that it can control violations of the Packers and Stockyards Act by presenting evidence to the Court through the Justice Department or by exercising its authority to license poultry dealers (see USDA releases cited under (16)).

A Purdue University study of vertical integration in agriculture suggested, "As long as producers are permitted to choose among several integrators in a given area, competitive conditions may remain as vigorous as ever. However, if a few integrators obtain dominance then all of the potential evils of monopoly may exist. In such circumstances the supervision of government or the development of strong counter-bargaining agencies may be necessary. Though integration need not reduce competition in an area, it may." (17, pp. 13-14).

Another problem associated with production contracts is the failure to provide economic opportunities for maximum investment in human capital. This means that the farm operator or laborer (whichever he may be in the future) may lose the opportunity to derive income from investments in himself. Eventually, losses of parts or all of the management aspects of entrepreneurship may mean a farm population made up, in part at least, of mechanically competent laborers with a few expert overseers hired by the management. Contract production may thus present fewer opportunities for human development through personal decision-making than traditional sole-proprietor production.

In their study, Harris and Massey (1) used 10 criteria to measure in quantitative terms the proportion of entrepreneurship shifted to off-farm firms under 420 contracts covering 71 different commodities throughout the United States. Each contract was scored on each criterion from no shifting (a rating of 0) to complete

shifting (a rating of 5) of selected elements of entrepreneurship. The sum of the scores could range from 0 to 50; however, a contract that scored 0 on all criteria would not have been included in the analysis.

The actual range was 12 to 43 degrees of integration, with an average of 27.2 points. A score of 43 points indicates almost complete transfer of the selected entrepreneurial functions. Average scores for commodities with as many as 15 contracts were: hybrid seed corn, 34.8; broilers, 31.1; sweet corn, 30.1; peas, 29.6; green and wax beans, 28.8; tomatoes, 24.8; and commercial eggs, 23.6 integration points (*I*, ch. 11).

Chappell and Martin's study (3) of managerial control under contracts for peppers, lima beans, and snap beans involved 19 decisionmaking areas. Management participation indexes for processors and growers respectively were: peppers, .44 and .32; lima beans, .58 and .48; and snap beans, .58 and .27. Processors estimated they held over half of management control, while growers felt that processors held only about a third.

Shifts of entrepreneurship from the independent-farmer model may occur more often under production contracts than elsewhere, except perhaps under farm leases. Some shifts under production contracts are likely to be related to credit policies in the acquisition of inputs. The tendency for suppliers to maintain ownership of selected inputs may become a routine provision of the contracts as farms become larger and farmers need more credit. Ownership of inputs and products is an important element in the independent-farmer model that may shift to the off-farm firm under production contracts.

Shift of entrepreneurial control of on-farm production processes may have a greater psychological impact on the farmer than shift of ownership of inputs and products. The latter results from what the farmer may see as a reasonable agreement, one which may be largely forgotten after the contract is made. But shift of control over on-farm production processes would be likely to plague the farmer on a day-to-day basis as he works with the contractor's fieldmen in meeting the contract requirements.

In the marketing process, problems may center largely on meeting product specifications. If the processor rejects the product for any reason, it may be difficult for the farmer to find a buyer, particularly where the conventional open market has disappeared with the introduction of the contract market.

FARM LEASING

Leasing of farm real estate is so widespread and familiar that the division of entrepreneurship between

landlord and tenant is generally accepted without question. Yet the landlord probably exercises more organizational and operational control over farm activities than the off-farm firm does under many production contracts. Also, his control is firmly based on ownership of major inputs, particularly the real estate. In addition, tenant farms produce about twice as much as is produced under production contracts.

In recent years, the proportion of farmers renting all their land has declined substantially, while the portion owning part and renting part has increased rapidly. The proportion of land under lease has remained relatively constant.

Farm leasing arrangements are highly variable. They are frequently described on the basis of whether cash or share rent is paid. Cash rent is usually a specified amount, but it may vary, depending on production, prices, or a combination of these. Share rent may be based either on crops, livestock, or both. Cash and share rent are frequently combined into crop-share-cash rent.

Typical leasing agreements do not encourage the tenant to conserve and develop the farm. Improvements attached to or made on the land must be left there when the lease terminates, although some leases do provide for payment for the unexhausted value of specified improvements at the end of the lease. Typically, the share tenant cannot afford to make improvements on his own or to increase the use of the variable inputs he supplies unless their marginal value product is twice his half share of the increased production--the added value is divided, usually 50-50, with the landlord.

The typical tenant has a much shorter planning horizon than the owner-operator, roughly about half as long. The shorter term occupancy tends to encourage short-term enterprises--crops rather than livestock--and to deter upkeep and development. The evolving ecological concern may present new problems to landlords and tenants as specific action is required to meet acceptable standards.

These two major problems in contemporary leasing--failure to provide compensation for improvements and the prevalence of short-term leasing--leave the tenant disadvantaged compared with the independent farmer of our model. And of course his entrepreneurial position is weakened by his lack of ownership and the divided control over decisionmaking.

A 1967 Illinois study cited earlier (Soltwedel (2)) furnishes some evidence on the sharing of entrepreneurial decisionmaking. The study "to determine the extent of landlord management participation" (p. 102) shows, among other things, "that landlords do substantially participate in the management of the farm firm"

and "that landlords participate more in organizational decisions than in operational decisions" (p. 66).

Inroads in decisionmaking, the study found, may also be based on limitations on the total size of the tenant's firm by covenanting in the lease against such practices as farming other than the landlord's land, working at off-farm employment, keeping more than a specified number of livestock, and growing more than specified acreages of various crops.

In summary, landlords typically participate substantially in entrepreneurship on farms they rent out. Their contribution of about half of the inputs and their claim to about half of the income appear to approximate the sharing of decisionmaking. This suggests that renting results in substantial departures from the independent-farmer norm.

Arrangements similar to farm leasing have been expanding in recent years in three relatively new areas--leasing of personal property, custom hiring of selected farming operations, and custom feeding and caring for farm animals.

Leasing of buildings, machinery, and equipment is still in the trial and error stage, with parties concerned trying to determine equitable rental rates and to discover which inputs are preferable to lease rather than own. Such farm leasing is not widespread enough nor has it been in operation long enough to furnish an adequate basis for reliable evaluation, but it may become an important supplement to ownership in areas of capital shortage. (For additional information, see Schaffner et al., who write about leasing machinery and buildings in (18), and Redman and Rudd, who write about farm credit and financing in (19).)

In some situations, custom hiring may replace either ownership or leasing of farm machinery. It may involve any or all farming operations on particular crops. Custom hiring involves the performance of a specific job, while leasing involves the material resource used. Whether custom hiring expands more rapidly depends on how slow-to-change rental rates adjust to the changing cost and mix of inputs and on the pressure for using available financial resources for other investments.

Beef animals are custom fed in many places. A rancher agrees to feed and care for cattle owned by off-farm investors, receiving a specified rate for pounds gained rather than a market price for the cattle. Custom feeding requires less capital and may yield a higher, more stable income for management, with fewer risks of ownership than typical cow-calf operations (see Oklahoma Farm Research Flashes (20)).

Because the future of leasing personal property, of custom hiring, and of custom feeding depends on too many unknowns, it is not possible to delineate any

particular problems here, or to predict future developments, except to say that such practices may continue to increase. But whenever a farmer uses them, he will depart widely from the independent farmer of our model.

FARMER COOPERATIVES

Cooperatives have three unique characteristics that may be related to the farmer's entrepreneurial situation: (1) Decentralized control among members, which is often based on the one-man, one-vote idea; (2) limited returns on capital; and (3) savings distributed as patron refunds and in direct proportion to the amount of business patrons do with the cooperatives. (See Abrahamsen and Seroggs (21) for excellent discussions of the philosophy, principles, practices, and characteristics of farmer cooperatives.)

Members of cooperatives gain enlarged bargaining power in the market in return for a commitment to the common action. The reasoning behind cooperative agreements is that farmers have a right to band together to obtain simple justice in the market place. There has been some concern about farmer control over cooperatives. Knapp raised the question, "How much control should members be expected to have over large cooperatives?" (22, p. 1). Stern asked, "Who is going to control farming?" (23). Both questions are generally concerned with a diminution of farmer control as cooperatives get bigger and as they become regional and perhaps national.

Cooperatives which remain effectively controlled by local members may perform numerous entrepreneurial functions without causing much weakening in farmers' entrepreneurial positions. Such cooperatives may even help the entrepreneur move toward the independent-farmer model by more nearly satisfying the open-market requirement. When cooperatives become regional and national, however, the shift in entrepreneurship to the cooperative may become substantial.

Despite the excellent progress of cooperatives, many unresolved problems remain in the farmer's market place. We have failed to build the kind of economic organization and infrastructure support to maintain inviolate the sole-proprietor business form in agriculture. But perhaps numerous sole-proprietor firms could not stand on their own in transactions with corporate businesses even if that support were present. Antitrust laws were enacted to keep corporations from taking unfair advantage of their favorable position in the market. Cooperatives were organized to bolster the market place strength of farmers, but few have achieved the market power of corporations.

Corporations in agriculture encompass the full production process, from acquiring inputs and producing products to selling the products, frequently in processed form, to the ultimate consumer. Perhaps more farmer cooperatives might increase production efficiency by expanding their activities to include, in addition to buying and selling, participation in some aspects of onfarm production and processing-distributing for the consumer. Why should farmer cooperatives buy inputs and turn them over to sole proprietors, who transform them into commodities which may then be marketed by another cooperative? Coordination of production via a cooperative firm might afford economies otherwise untenable.

Strengthening and redefining sole proprietorships by applying cooperative principles to some aspects of onfarm production is not being suggested as an immediate step. But some characteristics of cooperative enterprise should be studied as a feasible complement to present business forms, so that experimentation in particular aspects of onfarm production may be undertaken or expanded.

The corporate device--via investor corporations or production contracts--is being used to coordinate all three stages of farm production--purchasing, producing, and selling. Some cooperation in selected onfarm production processes may be able to save more entrepreneurial freedom for farmers than that provided under most production contracts.

Presently, farmer entrepreneurship does not appear to have been substantially encroached on by purchasing cooperatives. Marketing cooperatives may assume a larger portion of entrepreneurship, particularly if they become involved in producing to specification. In the future, cooperatives may be used for buying more inputs and selling more products. The big shift in entrepreneurship may come if selling cooperatives become more concerned with meeting high standards of quality, rigid specifications, and delivery schedules, all of which are associated with onfarm production.

CORPORATIONS IN AGRICULTURE

There are two kinds of corporations--small, private, closely held family corporations and large, public, widely held investor corporations. Family farming corporations frequently present a sole-proprietor image, while investor corporations that farm usually present the traditional industrial-corporate image. Numerically, corporations are relatively unimportant in farming, totaling only about 21,500 and accounting for over 1 percent of all commercial farms (1969 Census of Agriculture). According to Coffman's study of corporations with

farming operations (24), nearly two-thirds of all farm corporations are family corporations, while 14 percent are owned by individuals and 20 percent are other types, including investor corporations. The number of conglomerates acquiring interests in agricultural production apparently is also small (see Coffman and also Scofield, who discussed conglomerates in agriculture in (25)).

The family corporation was created by the 1958 Internal Revenue Code to enable businesses taking this form to avoid the so-called double-taxation feature that investor corporations face. There is typically little or no shift in decisionmaking in family corporations formed from sole proprietorships. Family corporations, for example, typically afford little protection by way of the highly publicized limited-liability feature. They gain little advantage in the credit market, and their management may not be perceptibly different from what it was under sole proprietorship. The chief uses of the corporate device are in facilitating intrafamily, intergeneration transfers and in effectuating retirement plans. The shift in status of the sole proprietor from an owner to a laborer is usually the most significant change.

The issue of corporations in agriculture does not arise from shifts in entrepreneurship under family corporations; it arises from shifts that occur when the sole-proprietor business form becomes the investor corporate form. Investor corporations are of many types. Some are organized only for agricultural production, without regard to profit. Others have entered agricultural production to make returns on investments. Some large corporate processors have entered farming to assure a steady flow of quality products for their processing plants and marketing operations. And some have entered farming to reduce taxes.

An unsettled question is whether large investor corporations are adaptable to many types of farming, but there are few farm products that are not presently being produced by corporations. Large corporations have engaged in fruit and vegetable production for many years. They have also produced cotton, wheat, and, to a lesser extent, some livestock. Many meat-processor corporations are feeding a portion of their cattle requirements, and corporate production of broilers, eggs, and turkeys seems feasible. Large-scale potato production has been undertaken by one corporation, which now has 10,000 acres of potatoes. An 880-acre farm in Mississippi is growing tomato plants. And the few large corporate sugarcane and pineapple farms in Hawaii are the major suppliers of these products.

Large farm corporations probably experience more economies in buying and selling than in producing. Buying economies may result chiefly from purchasing in large quantities. In selling, they have the advantage of

being able to produce to meet rigid specifications and to guarantee an even flow of products to the processing plant, both of which are important in today's economy.

Investor farming corporations are typically in sharp contrast to family corporations, yet both operate under virtually the same corporate law. Although both are structurally quite different from sole proprietorships, the investor corporation represents the farthest departure from the independent-farmer model.

However, there is a major shift—one seldom fully recognized—that occurs under both the family and the investor corporation. In writing of employee status in small corporations, Harl puts it this way: "Perhaps one of the most dramatic and far reaching ramifications of incorporation is the transformation of self-employed owners into employees" (26, p. 57). The hired employee of a corporation may enjoy all the benefits and disabilities of that status. However, where the three functions--shareholder, member of the board, and manager--are all performed by one person, the shift in entrepreneurship may be negligible, and there may conceivably be none at all.

Where a family corporation is used solely for intra-family, intergeneration transfers, there may be little shift of entrepreneurship from the independent-farmer model. On the other hand, the shift may be almost complete by *inter vivos* transfers of stock. The limited-liability feature can cause a shift in some cases. If the major stockholder is required to sign important papers both as a private party and as a corporation officer, none of his liability may have been shifted to the corporation. But if limited liability is fully effective, the full liability feature of sole proprietorship completely disappears.

The family corporate device does not require long-term planning and may provide only a modicum of continuity of operation unless the major shareholder releases before his death much of his control to the next generation. Where there is specialization or where two managers participate in decisionmaking, better management may be expected and may contribute to economic efficiency.

When an investor corporation enters farming, there is usually a total shift in entrepreneurship in supplying of capital, control of the business, and performance of the organizational and operational management functions.

Unless restrictive laws are imposed on corporate farming, the trend toward the family and investor corporate business forms in agriculture may increase over the next decade or so. The largest growth in terms of total capital may be in investor corporations. The shift in entrepreneurship may continue to be moderate under typical family corporations and practically complete under some investor corporations.

FARM CREDIT

Two questions involving agricultural credit for the future are important in a discussion of entrepreneurship. Hathaway delineated the one concerned with quantity of credit when he asked "*whether our current financial institutions are capable of financing the specific kinds of technological innovations necessary to increase the return to labor on well-organized farms to levels comparable to the nonfarm economy*" (27, p. 1,589).

A second question, dealing with quality of credit, is: To what degree will credit terms continue the already discernible shift of elements of entrepreneurial control from the borrower to the lender? A corollary question is: What impact will new credit arrangements have on the maintenance of select characteristics of the independent-farmer model?

Lenders and borrowers have considerable latitude in fashioning credit instruments to meet evolving needs. During the last half century, credit innovations have been encouraged and expedited by the very nature of institutions providing privately supplied credit, cooperative credit (Farm Credit Administration), and Government-sponsored credit (Farmers Home Administration).

The quantity of farm credit has increased rapidly since the early 1960's. Preliminary USDA data for 1971 indicate that total liabilities for the 48 contiguous States were more than double the 1962 level, having increased from \$28.7 to \$61.1 billion. Real estate debt increased from \$13.9 to \$29.5 billion and non-real estate debt rose from \$12.9 to \$29.7 billion. Farmers owed the Commodity Credit Corporation \$1.9 billion, in both 1962 and 1971 (28, p. 30).

It is generally estimated that by 1980, farm capital assets may be over \$350 billion and credit may be used to finance around \$125 billion of this (see Brake (29); Brake (30); Heady and Mayer (31); and Melichar (32)). Brake predicts that a successful sole-proprietor farm may require a minimum of a quarter to a half million dollars of capital.

Notable improvements have also been made in farm credit arrangements. During the past half century, there have been great increases in the length of real-estate loans; increases in the proportion of the appraised value that may be loaned; and reductions in interest rates to the level of those paid by other businesses. Farmers now have the benefit of use of the amortization principle; proof of the efficacy of deferred payments and prepayments; recognition that human capabilities should be considered when evaluating debt-paying ability; successful use of technical support on problems of financial, production, and home management; and experimenta-

tion with "one-stop" and "package" credit or "line of credit."

Other improvements in farm credit arrangements include: Obtaining direct access to the national money market; developing special credit for distinctive purposes; experimenting with credit-related services--such as providing credit life insurance, assisting in record-keeping and analysis, and helping expedite intrafamily, intergeneration transfers of farm property; and proving that significant credit innovations, if efficacious, will be widely accepted.

The developments in credit policies mentioned above should be adopted as widely as is feasible. Additional improvements, such as insured farm mortgage loans, should be given special attention. Possibly the most effective improvement has been the introduction of payments which vary annual costs of amortization and interest with variable farm income. Prepayments and deferred payments could also be given special emphasis.

Some consideration has been given to options other than traditional farm credit which may be used to satisfy the farmer's money needs. Perhaps a farmer should not be expected to accumulate a quarter to a half million dollars during his productive years, even allowing for the possibility of a substantial inheritance. Possibly, farm entrepreneurs should be able to use on a permanent basis the savings of others, in addition to their own. Or another option may be various types of co-ownership and co-operatorship, including leasing and labor-share agreements (see Baughman (33), p. 962).

However, for now, credit is the main option for farmers. Farmers will benefit if lenders can achieve a closer working relationship with farm borrowers by extending services, offering counsel and advice, and rendering some supervision to select borrowers. Future credit will probably be characterized by relatively widespread operation of these innovations. (This idea of supervising some borrowers is not new. In 1955, Engberg suggested that lenders develop ways to supervise selected borrowers, especially young farmers with limited experience and capital (34, p. 934).)

Lenders probably will require increasingly more information about their borrowers' businesses. The borrowing process will involve computerized record-keeping, more detailed information in the loan application, further development of budgeting and flow of income and expenses, more specification regarding use of loans, and detailed farm and home planning. Young borrowers, particularly those with little experience as managers and those borrowing a large proportion of their capital, probably will receive an increasingly larger amount of guidance and supervision. The report of the Commission on Agricultural Credit (35) and the

1971 Farm Credit Act, which implemented many of the Commission's recommendations, point strongly in that direction (see *Farm Credit News* (36), p. 13).

Two major issues are: Should borrowers and lenders be conscious of the import of each basic change in shift in entrepreneurship and should the entrepreneurial position of the farm borrower be safeguarded insofar as possible? The experience of the Farmers Home Administration in supervising credit and the emerging experience of the Farm Credit Administration and agricultural bankers should be analyzed to determine the most acceptable and effective way of joint participation in decisionmaking associated with farm loans. Some studies of the FHA experience have already been made (see particularly Kristjanson-Brown on the FHA approach (37) and Herr on new borrowers (38)). See also Irwin and Baker (39); in their study of effects of lender decisions they found that credit arrangements may have an indirect supervisory effect on farm organizational and operational decisionmaking. Lenders in cash-grain and in livestock areas in Illinois tended to ration loans in favor of farming enterprises about which they were most knowledgeable, thus indirectly affecting decisionmaking.

As Christiansen and colleagues have suggested, banks that "specialize further in farm loans will probably rely heavily on management participation." They do not expect banks to extend management services to all farm borrowers, and these services "will supplement, not replace, equity requirements" (40, p. 13). All concerned parties should be aware of the leverage the lender may have in imposing his recommendations on the borrower, and should be cautious of supervising so closely that the borrower may fail to develop management expertise himself.

THE FARMER AND HIS GOVERNMENT

The farmer has two distinct types of association with his government, from an entrepreneurial viewpoint: The government maintains certain reservations related to the farmer's property, even under fee-simple-absolute ownership, and the government may develop voluntary and compulsory programs relating to the farmer's well-being.

The reserved powers include the right to tax, the power of eminent domain, the police power, escheat, and the spending power. The magnitude of the spending power is conditioned by the right to tax. The spending power supports the just compensation requisite of the right to take private property for public use, to make payments to induce better land uses, and to obtain money for costs to enforce the police power.

The Federal Government has the power to levy income, estate, excise, and other types of taxes, while the right to tax real property is reserved to the States. An objectionable feature of the property tax is its tendency to be fixed, albeit increasing to new fixed levels, rather than to vary with variable tax-paying ability from year to year. When income is low over a period of years, tax delinquency can be devastating to entrepreneurship. In New Mexico, for example, 40 percent of the levy was delinquent in 1932; in DeBaca County, 90 percent of the farmland was delinquent on the 1932 levy as late as February 1, 1934 (Callaway and Cockerill (41), pp. 10 and 11).

Heavy, relatively fixed annual tax payments may encourage the farmer to use his resources exploitatively, particularly in years of low income or when he must also meet large, fixed annual charges for amortization and interest. In 1971, farm property taxes amounted to over \$3.1 billion annually, and now equal more than 17 percent of the farmer's income.

Among the less obvious effects of high taxes are tendencies of the farmer to keep inventories low when taxes are levied, schedule sales to meet taxes when they become due, procrastinate on converting land to best use for conservation and environmental purposes, show reluctance to cooperate on some government programs, retire earlier owing to social security income, maintain a high degree of liquidity, and subdivide viable farms to meet death taxes. These tactics may become increasingly deleterious to farmer entrepreneurship unless property taxes are stabilized at present levels or the rate of increase is reduced.

Under eminent domain, private property may either be taken outright for public use or an easement may be imposed. For land taken outright--for highways, for example--entrepreneurship is transferred completely. The shift of entrepreneurship may vary greatly under an easement, from a minimum interference for pipe lines or electrical transmission lines to an almost complete shift when the easement involves a frequently used roadway.

The use of eminent domain will probably increase during the next few decades. Continued population expansion may require more public land for uses such as recreation, highways, electrical transmission lines, pipe lines, transportation facilities, and pollution reduction facilities. At the same time, however, there will probably be an increasing concern with reducing interference with farmer entrepreneurial functions.

Unlike the power of eminent domain, which may directly affect only a small portion of all farmland, the police power may affect all parcels of land and may affect them differentially. Police power is adaptable to meet any new problems or objectives. As Sax suggested

in Takings and the Police Power (42), the question as to where zoning under the police power ends and "taking" under eminent domain begins is not fully resolved. Where the police power may be inapplicable or ineffectual, the power of eminent domain may be used. Minimum soil and water conservation may be accomplished through either the spending power or the police power. If society balks at spending to achieve conservation, there may be a shift to requiring conservation via the police power.

The right of escheat--the return of a decedent's property to the public in the absence of an inheritor--is included here for completeness. Its incidence may tend to rise with an increase in the number of small families or families with no children. A countervailing force to escheat is the increasing effectiveness of record-keeping and communication.

Although the spending power usually is not included among the reserved powers of government, it has been and is being used effectively to attain certain public policy objectives. Its use is necessary for just compensation under eminent domain and it may make operations under the police power more effective and acceptable. Use of the spending power in agriculture over recent decades has spiraled for programs of production adjustment and price support.

In a 1959 article on price support and production control, Tapp and Hopkin suggested that "Most governmental programs for the support of farm prices and the control of farm operations can be described and analyzed as simple Marshallian monopolies . . . All evidence, both theoretical and empirical over the past three decades, indicates that even government monopolies are ineffective without the virtual destruction of the entrepreneurial identity of the individual farms of the nation" (43, pp. 1225 and 1233). And Welborn, in talking about government control programs in agriculture, said, "Industry opposition to such programs. . . arises from . . . the severe limitations of entrepreneurial freedom that is part and parcel of all such programs" (44, p. 639). The shifts in entrepreneurship accompanying such programs are evolving so gradually that they are well established before their full impact is realized.

The spending power is so widely used that analysis in this report can include only a few Federal spending programs. State programs are too numerous and too diverse for adequate consideration here.

One type of farm program is the price-support program. An early price-support program introduced by the Federal Farm Board in the late 1920's proved ineffectual in the face of the market debacle of the early 1930's. High fixed costs caused farmers to maintain production when prices indicated that production

should decline. The farm market did not prove to be self-equilibrating in the short run, and farmers could not wait out the long run. As long as the farmer remained independent and his market remained open, supply and demand continued on a course that meant prices would remain too low to yield an acceptable level of living.

When it was decided that the Federal-Farm-Board type of action could not be made effective, many other different farm programs were enacted over the next decade or so. They were concerned largely with (1) use of the spending power to withhold cropland from production, which would tend to bring supply and demand together at an acceptable price in an open-market economy; (2) storage of excess production through nonrecourse loans by the Commodity Credit Corporation, which would help keep burdensome surpluses off the market; (3) allotment programs imposed by a two-thirds vote of producers, which would decrease production; and (4) food-aid programs, which would increase demand and thereby improve prices.

The Congress has established, amended, funded, and refunded many production-adjustment and price-support programs over the past four decades. These programs may have prevented glutted markets and resultant disaster prices, but they have not been notably successful in balancing supply and demand of farm products at a price that would sustain the farmer at an acceptable level of living.

The voluntary nature of most programs aimed at keeping total production within bounds—if indeed programs are voluntary when participation is purchased by extensive use of the spending power—would suggest only minor shifts in farmer entrepreneurship. The compulsory programs may involve only one principal decision—how much to produce—and that decision is set by a Government agency to increase farm income.

Marketing agreements and orders represent the second major type of farm program. They are concerned almost exclusively with the marketing phase of production. Each program is diverse and distinctive; each is drafted under enabling legislation (The Marketing Agreement Act of 1937) to meet the unique needs of a particular product at a given time and place. Milk marketing orders are given special consideration; other programs are chiefly involved with fruits, nuts, vegetables, and specialty crops.

Davis suggested in an article on vertical integration that “Two notable facts about the operation of marketing agreements and orders are that they do not entail the use of public funds, other than for general supervision, nor do they involve the ownership of stocks by Commodity Credit Corporation” (45, p. 302). Although marketing agreements and orders recognize the issues of

supply control and administered prices, they generally do not appear to violate antitrust laws, since their usual concern is to obtain a higher price through marketing.

Marketing agreements and orders violate traditional concepts of an open market, but they do not conflict with the basic principles of cooperative enterprise. They perhaps will not come into maximum effectiveness until closely competitive commodities are associated in the bargaining process and bargaining becomes widespread throughout the entire agricultural economy. (See Porter's appraisal of bargaining in agriculture (46).

Because marketing agreements and orders are not usually associated directly with buying inputs or onfarm production processes, they do not interfere directly with decisionmaking in those areas. However, to the extent that quality factors are included, the producer's onfarm decisionmaking may be infringed on. As for marketing the product, Breimyer concluded in his study of individual freedom in agriculture: “Beyond question, a marketing order violates the traditional definition of a freely competitive market economy” (47, p. 231). The shift in entrepreneurship in this area from the independent-farmer model, although substantial, is generally not as large as might be expected because it is not from a free market situation. Nevertheless, some entrepreneurship is shifted from the entrepreneur to the group under these agreements.

A number of other programs may be mentioned with a hint as to their impact on entrepreneurship. For example, the social security program assumes control over the use of income which goes as taxes to social security. The emerging water programs may also reduce farmers' entrepreneurship substantially by limiting their freedom to appropriate and use water. Catastrophic events like the flood in Rapid City, S.D., and the Agnes hurricane floods (both in June 1972) perhaps will keep water programs in the fore over the next decade or so, and the Colorado River controversy may continue for some time.

The sugar beet program merits study because of its effectiveness and the mutual trust and respect that the parties—the farmer, the hired wage laborer, the processor, and the Federal Government—have built up. It represents a radical departure from the open-market concept, since it involves substantial sharing of decisionmaking in regard to onfarm production and even includes minor aspects of acquiring inputs. The final price of the product is determined by the use of a formula based on the processor's net income; this unique part of the decisionmaking process is watched over by the Federal Government.

The Federal Crop Insurance Program was designed to render a service that private enterprise did not supply at

a reasonable cost. The farmer's risk-bearing is shifted in part to the program. His entrepreneurial position is strengthened without weakening substantially his entrepreneurial control.

The intervention of government in the economic activities of farmers is a hallmark of modern agriculture. Many Federal programs affect the farmer's decision-making prerogatives, and it seems plausible that the impact of these agricultural programs on entrepreneurship may continue to increase as new programs develop to improve the environment and to meet other conditions of a rapidly urbanizing society.

PROJECTIONS AND PREDICTIONS

Many analysts have attempted to project or predict the future of various aspects of agriculture. Projecting is concerned with estimating the future on the basis of past and current trends. Predicting--foretelling the future on the basis of observation, experience, and reasoning--includes some components that border on prophecy. For farm entrepreneurs more than for most other elements in agriculture, insight into their probable future status necessarily depends less on projecting trends than on predicting by observation and reasoning. Some important factors--including organizational and structural characteristics that involve the locus of entrepreneurship, particularly the decisionmaking element--have usually been ignored.

In his discussion of vertical integration and decision-making, Kohls quotes a farmer on this issue: "I do believe that now, more than at any other time in history, we (the American farmers) must constantly be on guard lest we trade our stake in agriculture for a "mess of pottage"'" (10, pp. 1808-09). This Iowa farmer's concern may be interpreted to mean that we appear to be moving toward a rural social-economic situation that few thoughtful persons really want. And we may be doing so with little awareness of either where we are drifting or what the consequences may be (see Hart, writing of the "new industrial revolution," in (48)). Thus, the emerging situation challenges agricultural leaders in research, education, and politics to recognize changing entrepreneurial conditions and to sponsor appropriate and positive action (see McPherson's appraisal of family farming (49, p. 318)).

Stine, in his evaluation of mistakes and lessons in agricultural economics, sensed the direction such action should take as early as 1954; "I concur in the proposition that the individual farm enterprise, the family farm, should be preserved as an efficient economic institution. But the degree of freedom in operations must adjust to the requirements of cooperation or coordination for

greater economic efficiency in the use of resources for today and tomorrow" (50, p. 806).

Salter expressed a scientist's view of increasing efficiency in 1950 when he said, in speculating on technological advance during the next 50 years, "It is my considered opinion that science has no more than made a beginning in advancing agriculture in the United States. In fact, the big harvest is still ahead. The stage is set with enormous possibilities" (51, p. 478). If this prediction proves accurate, the matter of adjusting entrepreneurship to the new technology may become increasingly crucial.

The lag of economic institutions and organizations in making adjustments to facilitate technological advance grows out of the dependence on *stare decisis* (adherence to precedence) in law and the domination of firm efficiency in economic analysis. Stability and predictability are objectives of law and institutions, while change and innovation are necessary in advancing efficiency, a major objective of economics. An effective blend of *stare decisis* and efficiency is not easily attained. The economic-legal engineer must attempt to combine technological innovation with a reasonable amount of legal stability and predictability.

To evaluate the future of farmers' entrepreneurship, it is necessary to project the direction of trends and predict the magnitude of the shift of various elements of entrepreneurship from the farm to off-farm private firms and public agencies. With the foregoing material as background, we can begin with the unique reservations of society in our system of private property.

In predicting the future of property use, Cribbet made these thoughtful points: "Both private and public rights must give in an urbanizing society. The legal tools are (a) police power, (b) eminent domain, and (c) taxation . . . we must pay the price of greater conflict if we want to control land use in the public interest, while leaving it in private hands. Police-power regulation requires the greatest degree of legal sophistication in order to make the system work" (52, p. 3).

The police power embodies the major public reservation in farmers' property. In the future, it may infringe more directly and substantially on entrepreneurial freedom and independence than do the powers of eminent domain and taxation together. This is possible because the police power has not been defined in a restrictive way. In fact, it is undefinable except in inclusive terms such as promotion of health, safety, morals, and general welfare.

Use of the power of eminent domain, whether in outright purchase or in the acquisition of easements, will undoubtedly expand in the 1970's beyond its present all-time high. Through eminent domain, programs for

urban renewal, mass transportation, and environmental improvement may expand public encroachment on the entrepreneurial rights of farmers.

Taxation of private property may not increase as much as the use of eminent domain and police power. Although available for other objectives, it may not be used extensively except for raising revenue. The upward trend in taxation of private property may be decelerated, but probably not turned downward. Much depends on the use of local taxes for local schools.

How extensively the power to spend will be used is problematic. It will probably continue to be used as a means of controlling agricultural resources. But its use in a wide range of social, economic, and environmental improvement programs in a manner not associated with eminent domain and police power is quite different. Wider use of spending power may need to be more adequately safeguarded so that all like property owners will be treated alike and public and private participation in establishing measures and instituting practices will be balanced as interests and responsibilities may indicate.

Use of the reserved powers, then, may represent a major shift of entrepreneurship to off-farm firms and agencies. Prediction and projection both indicate that progress in the industrialization of the economy, the urbanization of society, and the integration of agriculture may result in an increasing use of societal reservations. Present trends for many activities are likely to continue, probably at an accelerated rate.

A second area that must be examined is future shifts in various aspects of entrepreneurship brought about by private action. Shifts will be projected and predicted for the three phases of production--acquiring of inputs, onfarm production of products, and marketing of outputs.

Research and educational materials on acquiring inputs are almost totally lacking, but in the near future an information program for this may be comparable to the present program on marketing outputs. As more information on acquiring inputs becomes available to the farmer, he may be better able to resist losing entrepreneurship to suppliers of inputs.

It may be technically difficult to bring research and education in the area of financial management up to the level of activities on production management. However, such research and education programs will probably expand rapidly as financial problems become more difficult for both lenders and borrowers and as lenders participate more with borrowers in decisionmaking. Such programs may reduce the farmer's need for off-farm guidance in such matters and increase the lender's ability to counsel borrowers with minimum infringement on their entrepreneurship.

The provision of human capital may become relatively stabilized if onfarm production moves toward a structure which coordinates all three phases in a single unit. But if more farm laborers become unionized, negotiation may encroach on the province of management, as it presently does in industrial labor negotiations.

Vertical coordination via production contracts may dip more deeply into the acquiring-of-inputs phase of production. Ownership by the off-farm firm of the product throughout and after the production period is an important element in some contracts.

Because land is a major input and a fixed resource, the landownership system may be put to the test. The sole proprietor structure is becoming vulnerable at the intrafamily, intergeneration transfer juncture. Financing the transfer is of crucial importance if lenders participate more in decisionmaking. The requirements of fixed annual payments for amortization and interest in the face of highly variable annual income may cause unusual stress and strain on credit and management as farms become more highly capitalized.

For the onfarm production phase, if dependence on the free market continues to become less acceptable, onfarm decisionmaking may continue to shift from the farmer. Crucial organizational decisions--particularly those related to allocation of resources and to contract negotiations--may become increasingly associated with acquiring inputs and marketing outputs. Operational decisions relating to day-to-day activities and to carrying out provisions in the contract, however, may remain largely with the farm operator, except where production to specification is important.

A basic question for future farm organization is: How will management be supplied? Can family arrangements that gradually shift responsibility from father to son, thus maintaining a high incidence of sole proprietorship, continue to be depended on? Or will borrowing increase rapidly, with a gradual but substantial increase of lender supervision and control? Or will leasing, involving a possible increase of professional farm management, become important? Or will vertical coordination via contract farming increase, with much management being shifted to the coordinating firm? Or will some aspects of cooperative onfarm production emerge?

The answer is that all these trends may be evident during the transition period, however long or short it may be (see Nodland 53, p. 1623). Much depends on whether economic forces will be permitted to run their course, as at present, or whether the analytic tools of modern research and the reserved powers of society will be used to guide the course through purposeful action.

One trend is toward joining the supplying and marketing phases in vertical coordination contracts and investor corporations. The joining-together trend may remain relatively imperceptible in leasing, farm credit, and Federal programs. Some national supply firms may have sufficient volume and good enough contacts with processors-distributors to initiate and maintain production contracts on their own.

A USDA study has predicted that "Broiler 'factories' of several million birds completely controlled and integrated with a national feed supply company may not be uncommon. A similar pattern may also develop for egg and turkey production. Beef finishing companies with capacities exceeding 100,000 head may become commonplace in the cattle feeding business" (Allen and Eichers (54), p. 63). If these predictions materialize, many more onfarm production decisions may gravitate to off-farm firms.

If public opinion continues to run against farm production-control and price-support programs, perhaps the Government will eventually use a new device that would entail only administrative costs. Government's role could be confined to determining levels of total production, allocating that total among integrators, and overseeing the contractual relations between farmers and integrators. Total production of the commodity could be tailored to meet projected effective demand. Allocations to integrators could be based on past performance and production allotments assigned to each production area. Allocations to producers could be determined by past performance adjusted to prospective requirements and other established criteria. This is presented as a viable option--similar arrangements are already being used with sugar beets.

There remains the final phase of production-marketing of outputs. Even if the farmer can make effective arrangements regarding acquisition of inputs and can improve onfarm production of commodities, he will still be faced with the monumental task of obtaining an equitable price in the market place. Who controls and directs marketing processes is important. Will it be exclusively off-farm firms bargaining individually with farmers, or might it be a coterie of firms negotiating with representatives of numerous onfarm producers?

A continuation of present agricultural processes is not predicted. This is because two quite different problems will most likely lead to change. One is concerned with attaining for the farmer either a free and open market or adequate muscle in the market place. The second concern is the complex of problems associated with changes in marketing that encroach on the farmer's status as an entrepreneur.

The farmer may rely on either the free enterprise system or group action in marketing, whichever is more effective in a particular situation. Combinations may be necessary in resolving the most difficult problems. The effectiveness of group action depends, in part at least, on the gravity of the situation and on the extent to which group interest is inherent in the particular situation.

If the markets for agricultural products continue to show major deficiencies, group action by farmers may increase. As Clodius has said, "The farmer cannot establish a private price policy. He cannot establish a private product policy that is economically meaningful, nor an advertising policy, nor a research and development policy" (55, p. 1604). If more group action is to be taken and individual freedom is to be safeguarded at the same time, the first imperative is to improve the policy orientation under which group action is taken.

Group action requires the farmer to give up some of his entrepreneurship. Any reduction in his independence, however, must be adequately compensated for by benefits he receives. To this end, it appears that farmers are beginning to think seriously about cooperative and collective bargaining. In his investigation into the status and potential of agriculture, Hathaway found that "An overwhelming 90 percent of all farmers in [a] Michigan survey" agreed with the statement: "Farmers must get together in bargaining associations to deal effectively with processors and retailers" (56, p. 122). Perhaps farmers are becoming ready to exhibit that degree of internal solidarity and cohesiveness necessary to attain equity in the market place.

In marketing, vertical coordination contracts are of major importance, but other kinds of contracts should be of concern. Farmers' contracts may attract more attention as further observations are made of the contemporary shifting from a customary to a contractual economy. The trend may also be toward more and better information about market standards and regulations to support improvement of farmer contracts. Particular emphasis may be placed on production contracts, contracts between farmers and cooperatives, and contracts involving bargaining between producer groups and distributors-processors. Some attention may be given to provisions in mortgage agreements, farm lease contracts, articles of incorporation, contracts with Government agencies, and other contracts.

We have seen that important elements of farmer entrepreneurship are being shifted to off-farm firms and Government agencies. The rate of transfer has been slow compared with change in technology, but it may be speeding up. The shifts may differ among vertical coordination contracts, credit arrangements, cooperatives, corporations, and Government-sponsored pro-

grams. The wide diversity in agriculture would appear to support many business forms and relationships. Attachment to the family-farm organization of agriculture may encourage efforts to maintain the outward forms. But relations that are being established in acquiring inputs, producing commodities, and marketing outputs may result in such a redistribution of elements of individual entrepreneurship that family farming may disappear.

CONCLUSIONS

Few statistics are available for measuring the shifts of entrepreneurship from farmers to off-farm firms. Two studies of vertical coordination contracts (discussed earlier) indicate that about half of the selected items of decisionmaking are shifted to off-farm firms under these contracts. A study of farm lease contracts (also discussed above) shows that a substantial share of management control is divided between landlords and tenants. Less formal pieces of information, and judgments of informed sources, also suggest that shifts in entrepreneurial functions are taking place.

In interpreting shifts in entrepreneurship, we should recognize that change has accelerated in recent years—especially technological change. We should also recognize that changes in entrepreneurial functions are not always as obvious as technological change. They often occur before they are identified. A basic issue involves the trend toward off-farm businesses that have decisionmaking power but no property, and farmers who have property but no power.

We should also recognize that probably the major entrepreneurial difference between farming and industry is the sole-proprietorship form, in contrast with the corporate form. There is a major difference between the two business-legal forms: the fixed annual payment for amortization and interest in the case of sole proprietorships, and the variable annual payment of dividends in the case of corporations.

Another difference is that many small farm firms depend heavily on publicly sponsored research and education; they typically do little formal research on their own. Many industrial corporations are large enough to undertake their own research. Sole proprietors in farming also depend in part on the research programs of corporations with whom they do business. The farmer is thus vulnerable to erosion of his entrepreneurship, particularly in the absence of public research on which he usually depends.

Although erosion of entrepreneurship may seem insignificant when functions are viewed individually, separate consideration is necessary in analysis and

interpretation. Comprehension and understanding might be improved if shifts in entrepreneurship could somehow be viewed as a whole.

It has been established that farmers are losing essential characteristics of the independent-farmer model. Societal reservations are being more widely applied each year, with a resulting shift of much private entrepreneurship to the public sector. Farmers own, in unencumbered fee-simple ownership, fewer of the real estate and personal property factors of production than formerly. Credit encumbrances will probably expand significantly over the next decade. Renting probably will continue unabated. Rent-like arrangements relating to on-farm production probably will increase. Hired labor may become unionized and may assume some operational management functions. The stage is set for farmer cooperatives to become more viable. Organizational and operational control by the farmer may be weakened under vertical coordination contracts. Investor corporations may take over additional shares of entrepreneurship. Organizational and structural aspects of agriculture will doubtless change under the pressure of rapid technological development. The exact nature of the adjusted structure is still not obvious.

We do not yet have a way of evaluating entrepreneurial factors. Classification and measurement of managerial inputs have concerned agricultural economists for many years (57). Measurement of management characteristics is increasingly important in the appraisal of situations involving farm loans. Some progress has been made in sorting out and classifying major management factors, but little progress has been made in quantifying them. It has been suggested that "management's main task is that of adjusting a business to imperfect knowledge and change." Five steps in this process are: "observation, analysis, decisionmaking, action, and acceptance of responsibility for action" (57, p. 45).

As a next step we may need to measure the magnitude of various management inputs so that we can more accurately evaluate the shifts.

Family farming has received considerable attention in recent years, but little has been done to revitalize it. Remedial action has been too little and too late. Analysis and evaluation are needed to determine whether family farming can survive without substantial restructuring.

The sole-proprietor, full-ownership family farm may be untenable without a firm commitment to massive programming to attain and sustain it. Typical farm firms producing for the market can't be expected to accumulate a fourth to a half million dollar investment under present institutions and processes unless farming

becomes based on a closed society, in which birth or marriage into a landowning family results in the provision of a substantial share of the needed capital.

Perhaps the attributes that should characterize ownership of and control over farming should be determined and a new system fashioned to meet these requirements. Something similar was done when fee-simple ownership was contrived out of new notions and ideas, supplanting the dying feudal system. The present call for change seems just as urgent.

In summary, had present trends in agriculture seemed relatively satisfactory, this study would not have been undertaken. If lines of remedial action could not be visualized, the writing would have been relatively sterile. Some problems have been uncovered and some remedial measures have been mentioned. Such measures are not recommendations; they merely point to the possible nature of change. Specific recommendations should be based on new research and should be evaluated by many people. Yet to be accomplished is a reasonably complete yet concise presentation of general lines of action that might be considered.

Legitimate questions are: What would be involved if substantial adjustments in fundamental arrangements were undertaken? What would characterize the organization and structure of agriculture *after such changes were made*? The following are possible answers:

1. Progress, improvement, and development would be emphasized, with no substantial shifts of entrepreneurship from the farmer.

2. There would be no institutional lag.

3. The owner's inclination to use property as he sees fit would be replaced by a deep sense of responsibility to conserve and develop resources and to prevent pollution.

4. Societal reservations—particularly the police and spending powers—would be widely and more effectively used.

5. Landlord and tenant lease contracts would be amended, particularly in regard to farm improvements and terms of lease.

6. There would be considerable expansion in farmer cooperative activities, including experimentation with cooperative principles in on-farm production.

7. Cooperative or collective bargaining would replace imperfect competition in the market place and would be watched over by an adjudication system that would make it tolerable.

8. There would be major changes in farm credit, including, in particular, a reduction in the number of places from which farmers obtain credit, elimination of the need to amortize the loan, and acceptance of the practice of relating annual cost of credit to annual earnings.

9. Family corporations would be in widespread use and investor corporations would continue to exist, perhaps in increasing numbers.

10. Production contracts would continue to be used—particularly to improve quality, schedule production, and reduce costs—with farmer entrepreneurship adequately safeguarded.

11. Tendencies toward monopoly or monopsony and oligopoly or oligopsony would be balanced by countervailing power in the hands of farmers under the adjusted situation.

12. There would be much variety adaptability, and flexibility—a condition opposite to a monolithic organization and structure of agriculture.

13. The organization and structure of agriculture would be characterized by a rational admixture of business forms, including family, partnership, and corporate farms.

Perhaps a new business form would emerge from these changes. Its characteristics might involve select features of other forms. It might provide for private initiative similar to sole proprietorship, perhaps without all present features of ownership, particularly the "do-as-I-please" trait. The new structure might contain a limited liability feature comparable to the corporate form. It might be favored with tax advantages available to a new business form, at least in its early development. It might avail itself of the economies of specialization wherever feasible. It might depend heavily on select cooperative features in buying, selling, managing, producing, and owning. It might be financed so that fixed annual costs for amortization and interest were not used; something approximating corporate dividends might substitute flexibility for rigidity in farm credit. Farm labor might be unionized, but under proper government supervision. Vertical coordination contracts might be made more effective under a body of law specifically designed for them. And a special law, comparable to those under which corporations and cooperatives were established, might provide legal sanctions and protection to the new business form.

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